c) adding about 1-10 weight percent substantially water soluble magnesia powder precursor to the alumina powder precursor to make an aqueous green powder precursor;

d) mixing the aqueous green powder precursor;

e) drying the aqueous green powder precursor to obtain a green powder;

f) pressing a green body from the green powder;

g) removing residual moisture and organic material from the green body; and

h) firing the green body to about cone 13 to produce a high-alumina body.

2. (Currently Amended) The method of claim ~~1~~4 wherein the magnesia powder precursor is magnesium carbonate.

3. (Currently Amended) The method of claim ~~1~~4 wherein between about 2 weight percent magnesia and about 6 weight percent magnesia are added.

4. (Currently Amended) ~~The method of claim 1 further comprising the step of~~A method for producing a high-alumina body at reduced sintering temperatures, comprising the steps of:

a) providing an alumina powder precursor;

b) adding water to the alumina powder precursor;

c) adding about 1-10 weight percent substantially water soluble magnesia powder precursor to the alumina powder precursor to make an aqueous green powder precursor;

d) mixing the aqueous green powder precursor;

e) drying the aqueous green powder precursor to obtain a green powder;

f) pressing a green body from the green powder;

g) removing any residual moisture and organic material that may be present from the green body;

h) firing the green body to about cone 13 to produce a high-alumina body; and

i) between b) and d), adding a 3 percent aqueous solution of carboxymethylcellulose;

wherein the green body is fired in air; ~~wherein about 2 weight percent;~~ and

wherein mixing is accomplished by wet ball milling with alumina media.

5. (Currently Amended) The method of claim ~~1~~4 wherein the high-alumina body is substantially resistant to dissolution in molten aluminum.

6. (Currently Amended) The method of claim ~~1~~4 wherein the high-alumina body is substantially resistant to chemical attack over the pH range from about 0.3 to about 13.5.

7. (Cancelled) A method for producing a high-alumina body having enhanced chemical stability at reduced sintering temperatures, comprising the steps of:

a) providing an alumina precursor;

b) adding about 1-10 weight percent substantially water soluble cation source to the alumina precursor;

c) mixing the alumina precursor;

d) forming the alumina precursor into a desired shape; and

e) firing the alumina shape to produce a substantially non-vitreous high alumina body;

wherein the cation source supplies a cation to the alumina precursor; and

wherein the cation is selected from the group consisting of magnesium and chromium.

8. (Currently Amended) The method of claim ~~7~~12 wherein the high alumina body has a substantially uniform grain size.

9. (Currently Amended) The method of claim ~~7~~12 wherein the alumina precursor is a powder and wherein the alumina precursor is formed into a desired shape by pressing.

10. (Currently Amended) The method of claim ~~7~~12 wherein the alumina precursor is a slurry and wherein the alumina precursor is formed into a desired shape by casting.

11. (Currently Amended) The method of claim ~~7~~12 wherein the alumina precursor is a slurry and wherein the alumina precursor is formed into a desired shape by spraying.

12. (Currently Amended) ~~The method of claim 7~~ A method for producing a high-alumina body having enhanced chemical stability at reduced sintering temperatures, comprising the steps of:

aa) providing an alumina precursor;

bb) adding about 1-10 weight percent substantially water soluble cation source to the alumina precursor to form a pre-mixture;

cc) mixing the pre-mixture to form a mixture;

dd) forming the mixture into a desired shape; and

ee) firing the desired shape to produce a substantially non-vitreous high alumina body;

wherein the cation source supplies a cation to the alumina precursor;

wherein the cation is selected from the group consisting of magnesium and chromium; and

wherein the substantially non-vitreous high alumina body is part of a metal matrix composite.

13. (Original) The method of claim 12 wherein the metal matrix is aluminum.

14. (Currently Amended) The method of claim ~~7~~12 wherein the ~~alumina precursor~~desired shape is fired by rapid passage through a sufficiently intense hot zone.

15. (Currently Amended) ~~The method of claim 14~~A method for producing a high-alumina body having enhanced chemical stability at reduced sintering temperatures, comprising the steps of:

aaa) providing an alumina precursor;

bbb) adding about 1-10 weight percent substantially water soluble cation source to the alumina precursor to form cation added alumina precursor;

ccc) mixing the cation added alumina precursor;

ddd) forming the cation added alumina precursor into a desired alumina shape; and

eee) firing the alumina shape to produce a substantially non-vitreous high alumina body;

wherein the cation source supplies a cation to the alumina precursor;

wherein the cation is selected from the group consisting of magnesium and chromium;

wherein the desired alumina shape is fired by rapid passage through a sufficiently intense hot zone;

wherein the cation added alumina precursor is substantially particulate; and

wherein the cation added alumina precursor is passed through the hot zone under quasi-weightless conditions.

16. (Currently Amended) The method of claim ~~7~~12 wherein the high alumina body is substantially resistant to dissolution in molten aluminum.

17. (Currently Amended) The method of claim ~~7~~12 wherein the high alumina body is substantially resistant to chemical attack over the pH range from about 0.3 to about 13.5.

18. (Previously Cancelled)

19. (Previously Cancelled)

20. (Previously Cancelled)

21. (Previously Cancelled)

22. (Previously Cancelled)